

# **Supporting Vital Statistics and NEDSS Analysis, Visualization and Reporting Using South Carolina Community Assessment Network**

(<http://scangis.dhec.sc.gov/scan/>)

CDC PHIN 2<sup>nd</sup> Stakeholder Conference  
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05/27/2004

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South Carolina Dept. of Health and Environmental Control



# Acknowledgements

**SCAN** has been

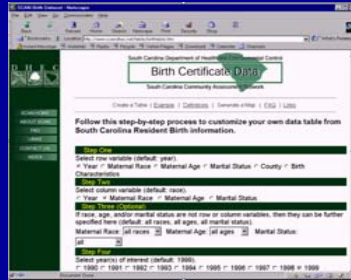
- A Strategic Outcome by the SC DHEC's 2000-2005 Plan:  
    *“Developing and maintaining a web-based, interactive,  
    user-friendly data system for community assessment”*
- A team effort since 2000:
  - Chief of Staff: Doug Calvert;
  - PHSIS: Murray B. Hudson and Jim E. Ferguson
  - BioStatistics and Health GIS:  
    Guang Zhao, Jared Shoultz, Mike Tian,  
    Steven Black, Shae Sutton,  
    John Sanders, Medi Khan, Angela Knees,  
    Mary Glover, Suzanne Long, David Whisenant
  - Past Staff: Trina Sease, Holly Gilliam, Petko Kostinov,  
    Kirk Shull, Paul Laymon, Irina Levshina
  - Other Agency Programs:  
    SC Central Cancer Registry, Bureau of Lab  
    Bureau of MCH, Bureau of Disease Control
  - Vendors: US Computing Inc., Microstaff

# SCAN Highlights

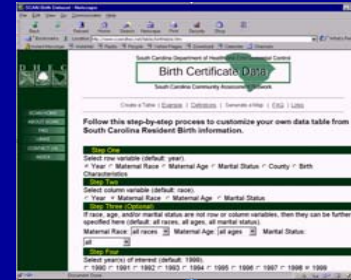
- **SCAN** is approved by SC DHEC EMT as the Agency's tool for disseminating public health statistics and information.
- **SCAN** enables you to query statistical table, trend lines, **clusters** and interactive GIS maps at State, district, county or zip-code level.
- **SCAN** is mainly used for planning, cancer cluster investigation, emergency response, deliveries, program evaluation, hypothesis generation and education
- **SCAN** utilizes the cutting edge COTS Internet and GIS technologies
- **SCAN** is targeted for K-12 and above users; it is constantly evolving, and it is fast.
- **SCAN** has a public face as well as a password-protected interface to allow AVR of confidential health data
- **SCAN** serves an average of 260 users/11,000 hits per day.
- **SCAN** has a set of confidentiality rules implemented to protect confidential data from being identified.
- **SCAN** won 2003 ESRI International Users Conference Special Achievement Awards and recognized by the National Turning Initiative and a number of CDC and state health departments.

# SCAN Structure

**Table  
Request**

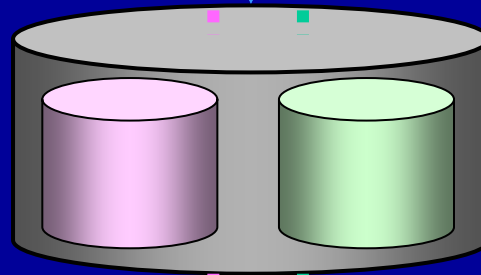


**Map  
Request**

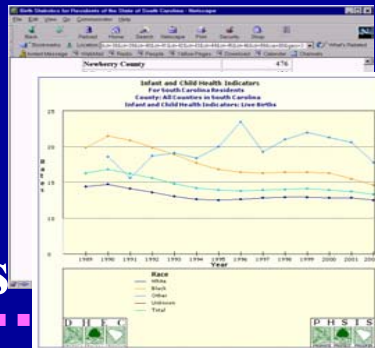


**Powered  
Micro Soft  
ASP.NET**

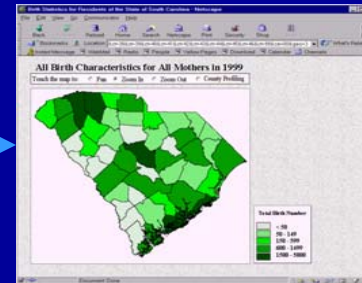
**Powered by  
ARCIMS  
and MS NT**



**Tables  
Charts**



**Maps**




# SCAN Current Modules

SCANDEHC Home Page - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites Media Print View Source

Address http://scangis.dhec.sc.gov/scan/ Go Links



PROMOTE PROTECT PROSPER

- SCAN HOME
- ABOUT SCAN
- FAQ
- LINKS
- CONTACT US
- INDEX

## SCAN

South Carolina  
Community Assessment Network

S.C. Department of Health and Environmental Control

**Welcome!** This site allows generation of user-specified tables and interactive maps of public health data.

**NOTICE:** This page is best viewed with Internet Explorer version 5.0 or higher. Functionality may be limited with Netscape Navigator or other web browsers. Popup blockers will prevent some mapping pages and tables from appearing and need to be disabled.

### Datasets Currently Available

**Births (1990-2002)** - Generate interactive tables and maps from all births to SC residents from birth certificate data.

**Population (1990-2002)** - Generate interactive tables and maps from demographic information for SC residents from census data.

**Deaths (1990-1998)** - Generate interactive tables and maps from all deaths of SC residents from death certificate data.

**Deaths (1999-2002)** - Generate interactive tables and maps from all deaths of SC residents from death certificate data.

**Pregnancy Risk Assessment Monitoring System Data (1993-2001)** - Generate interactive tables and charts from the survey results of the SC PRAMS program.

**Pregnancy (1990-2002)** - Generate interactive tables, maps, and charts from live birth, abortion, and fetal death information for SC residents from birth certificate, death certificate, and abortion data.

**Fetal Deaths (1989-2002)** - Generate interactive tables and charts from fetal death information for SC residents from fetal death data.

**Mother's Health and Lifestyle (1989-2002)** - Generate interactive tables, maps, and charts about mother's health and lifestyle information for SC residents from birth certificate data.

**Infant and Child Health (1989-2002)** - Generate interactive tables, maps, and charts about infant and child health information for SC residents from birth and death certificate data.

**Infant Mortality (1989-2002)** NEW - Generate interactive tables, maps, and charts about infant mortality for SC residents from birth and death certificate data.

**Cancer Incidence (1996-2000)** NEW - Generate interactive tables, maps, and charts from cancer incidence data for SC residents from South Carolina Central Cancer Registry data.

### Future Datasets

Lead Data	Immunization Data	Violence and Injury Prevention Data
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**Confidentiality Disclaimer:** The collection and reporting to DHEC of information contained on the South Carolina Certificates of Birth, Death, and other Vital Events along with Cancer Incidence Reports are exempt from HIPAA regulations (see 45 CFR §§ 160.203 (c), 164.512 (b) (1)). However, state law provides protection against the unauthorized release of confidential information from these documents.

Birth (1990-2002)

Population (1990-2002)

Death ICD-9 (1990-1998)

Death ICD-10 (1999-2002)

Pregnancy Risk Assessment  
Monitoring System (PRAMS)  
(1993-2001)

Pregnancy (1990-2002)

Fetal Deaths (1989-2002)

Mother's Health and Lifestyle  
(1989- 2002)

Infant and Child Health (1989-  
2002)

Infant Mortality (1989- 2002)

Cancer Incidence (1996- 2000)

Childhood Blood Lead

Immunization

# SCAN AVR Functions

Table

Death Statistics for Residents of South Carolina

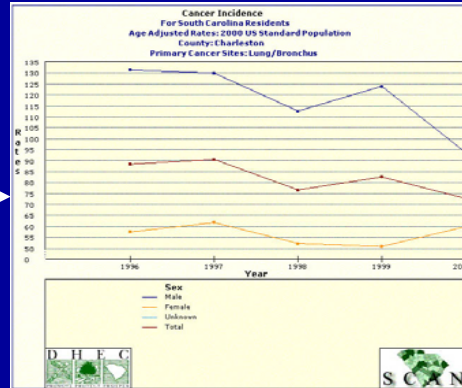
Cause of Death: All Causes

Race	1995		1996		1997		1998		1995-1998	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
White	23,342	5.4	23,585	5.4	23,363	4.9	24,428	4.9	94,718	5.1
Black	10,070	8.2	10,379	8.4	10,190	7.6	10,230	7.5	40,869	7.9
Other	82	3.8	69	3.2	86	2.6	103	2.9	340	3.0
Unknown	6	0.0	2	0.0	21	0.0	20	0.0	49	0.0
All Races	33,500	6.1	34,035	6.1	33,660	5.6	34,781	5.5	135,976	5.8

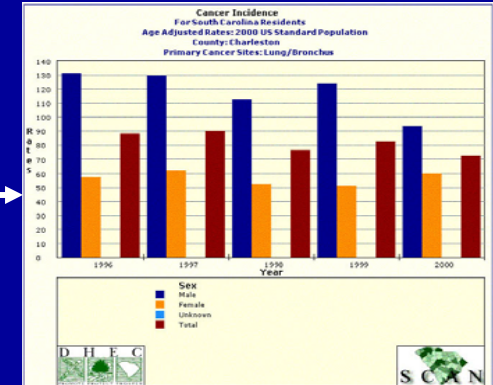
Rotat Download

Footnote: Rates per 1,000. Age Adjustment Uses 1940 Standard Population. Rates calculated with small numbers are unreliable and should be used cautiously.

Trend lines



Chart



Confidence Interval

**Step Eight**  
Choose output preference (default: Frequencies).

- Frequencies
- Frequencies and Crude Rates
- Frequencies and Age Adjusted Rates: 1940 Population
- Frequencies and Age Adjusted Rates: 1970 Population
- Frequencies and Age Adjusted Rates: 2000 Population
- Frequencies and Percents by column
- Frequencies and Percents by row

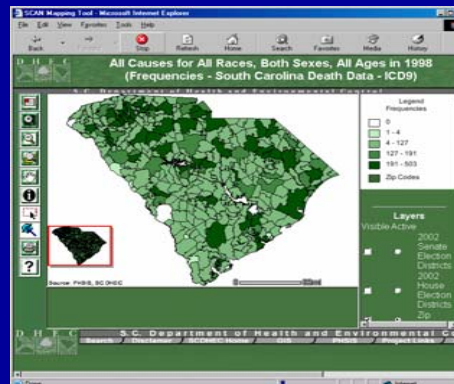
**Step Nine**  
Choose confidence interval (default: No Confidence Intervals).

- No Confidence Intervals
- 95% Confidence Intervals
- 99% Confidence Intervals

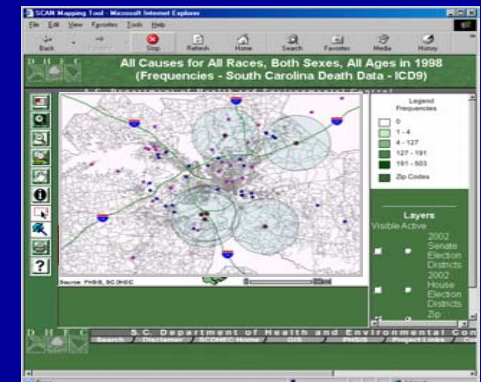
\*\*\*In order to view confidence intervals, frequencies and rates must be selected in Step 8.

Generate Table Reset All

Interactive GIS Maps



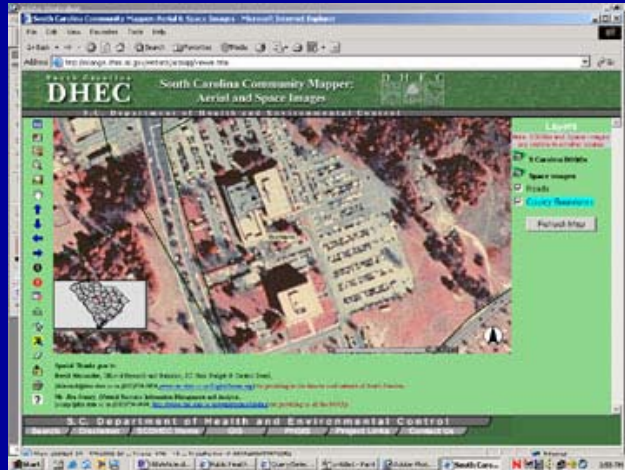
Cluster Delineation





# SCAN Additional AVR Functions

State-wide imagery as a base map

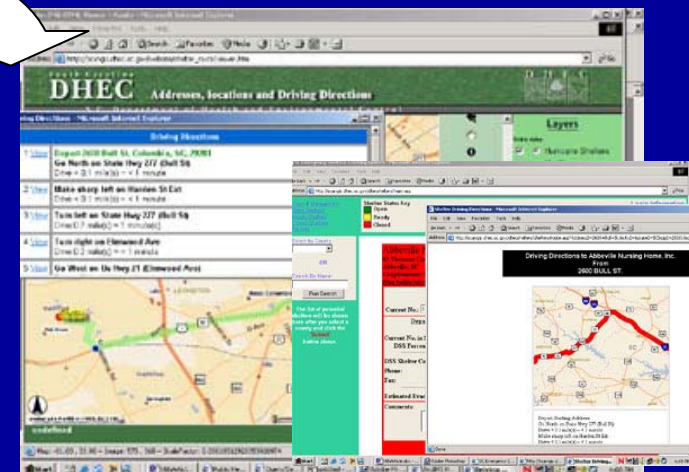
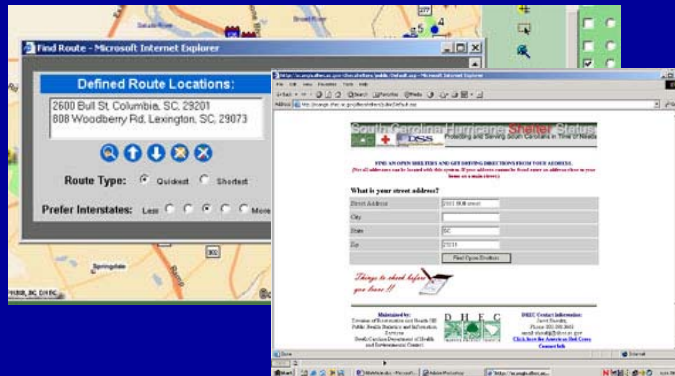


Health Facility locations on map



step-by-step driving directions

Locating addresses



# SCAN Supports AVR of Confidential Data

Statistics and Information

Uncertain Relationships

Public Face

Low Confidentiality

State

District

County

Zip Code

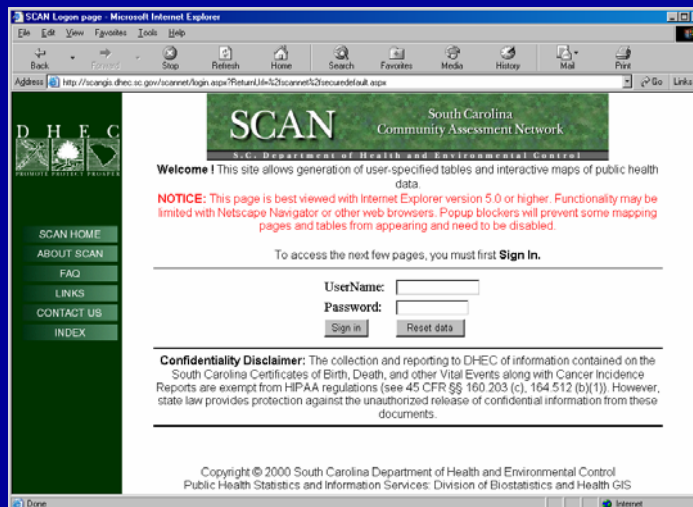
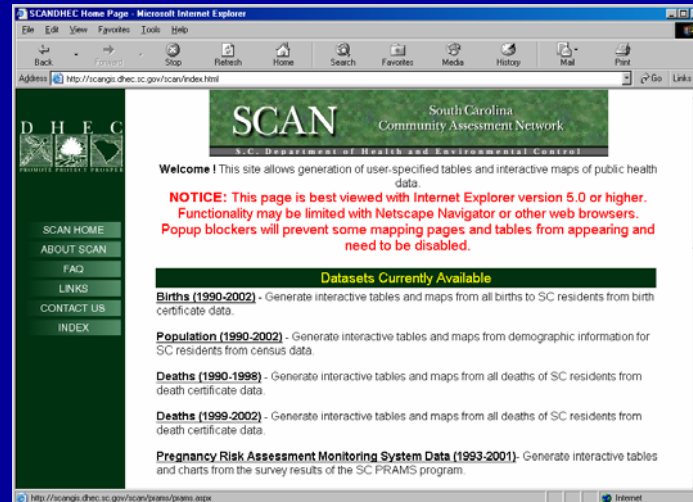
Point

High Confidentiality

Record and Point Data

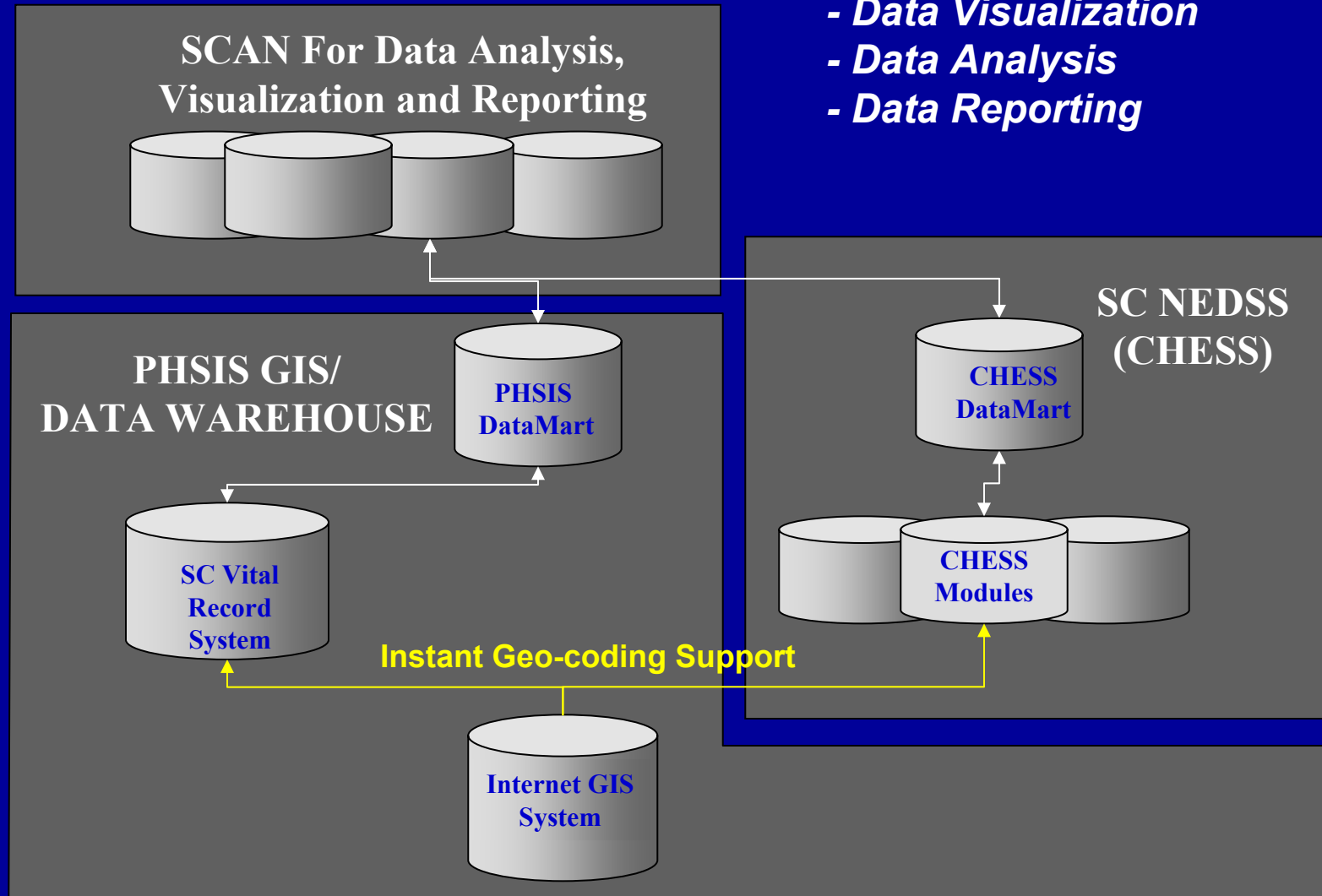
Accurate Details

Password  
Protected  
Interface





# **SCAN** Supporting NEDSS AVR



# SCAN Supporting the Agency's Information Infrastructure

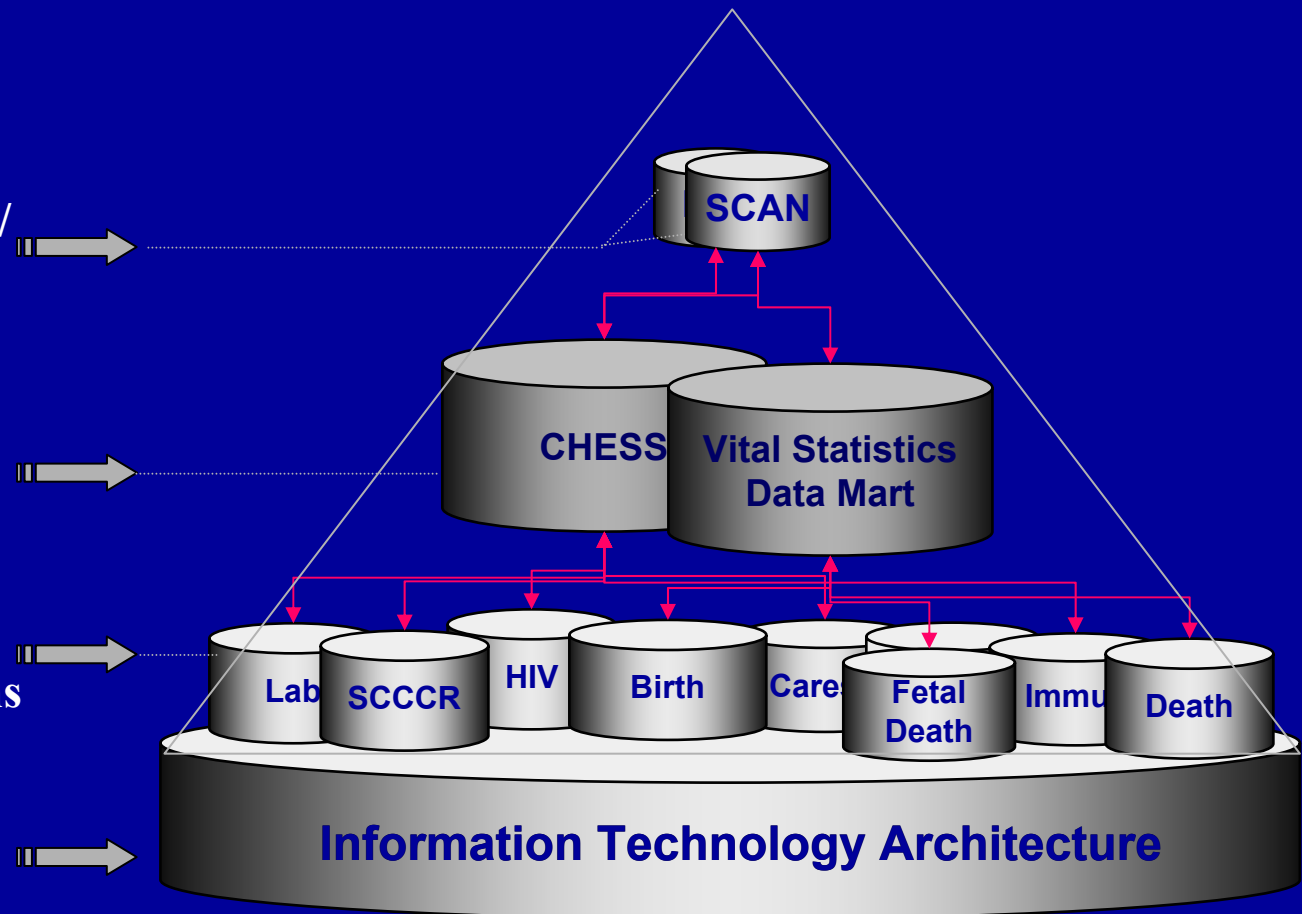
## System Categories:

Data Dissemination/  
Internet Systems

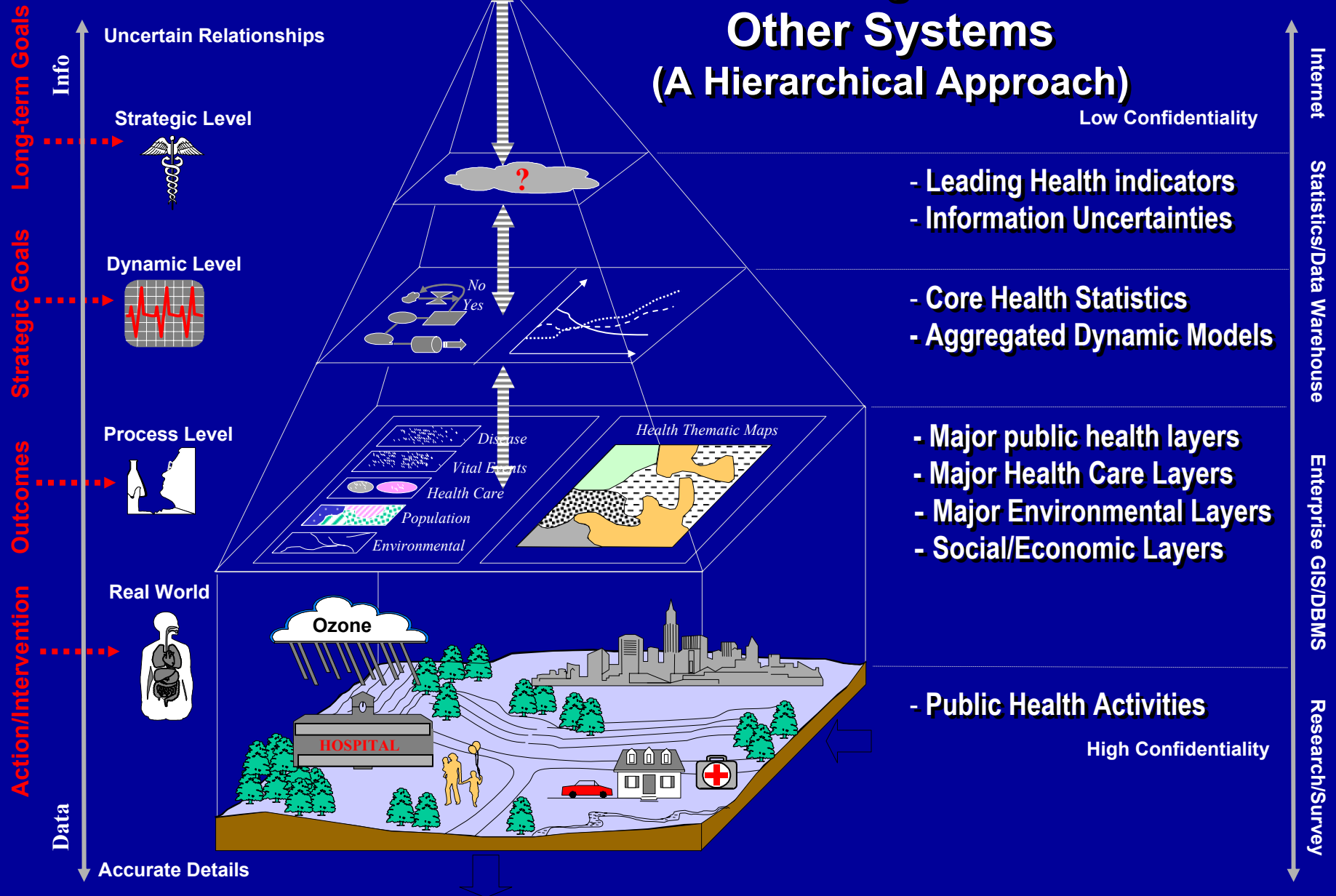
Data Analysis/  
Statistics Systems

Data Collection/  
Operational Systems

IT Infrastructure/  
Standards



# SCAN Integrates with Other Systems (A Hierarchical Approach)



Mission Achievement



Assessment, Planning and Assurance



Daily Practices and Operation



Layer 1  
Layer 2  
...



### Strategic Level

- Outputs: uncertain relationship, leading health indicator
- Example data: infant mortality, public health threat level
- Data collection: abstracted from process and dynamic level
- Method: decision-making, human knowledge
- Example data systems: EIS, DSS, SDSS

### Dynamic Level

- Outputs: de-identified, core health statistics and trend
- Example data: population statistics, relative risk
- Data collection: aggregated from process level, survey
- Method: statistics, modeling, epidemiology, ecology
- Example data systems: SAS DW, GIS, Visualization

### Process Level

- Outputs: accurate details about patterns and process
- Example data: personal, provider, location, material, party
- Data collection: through diagnosis, field study, lab analysis
- Sciences: biology, medicine, geography, epidemiology
- Example data systems: NEDSS, GIS, vital record system
- IT architecture: web client/server based DBMS and GIS



Multi-Agency  
Information  
Infrastructure

# The “*Healthscape*” Vision For Public Health Information Systems

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